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10/572,595	10/24/2006	Keiichi Yano	287530US0X PCT	2913
22850 7590 05/12/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER LI, MEIYA	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

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### DETAILED ACTION

1. Applicant argues that "the claimed range at issue satisfies the written description requirement."

The original specification did not include a thickness range of 0.3 to 0.6 mm of the substrate, except specific examples of 0.3mm and 0.6mm. One of ordinary skill in the art would not consider this limitation to be inherently supported by the discussion in the original disclosure.

Therefore, the rejection of claims 1, 3-7 and 9-11 under 112-1<sup>st</sup> paragraph is proper.

2. Applicant argues that "Hsing Chen does not disclose a vapor-deposited metal film being arranged on the front surface of the aluminum nitride substrate as claimed by Applicants;" and "Hsing Chen does not disclose, or depict in the Figures, reflective material applied to the front surface of the aluminum nitride substrate" because "due to claimed limitations that the metal film is formed directly on the front surface of the aluminum nitride substrate."

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "applied to" and "directly on") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The broad limitation of claim does not require the metal film to form **directly** on the front surface of the aluminum nitride substrate.

Therefore, Hsing Chen discloses a vapor-deposited metal film being arranged on (above) the front surface of the aluminum nitride substrate as claimed by Applicants.

3. Applicant argues that "a substrate thickness as disclosed by Hisaka (i.e. 0.2 mm) is (i) not within Applicant's claimed range of 0.3-0.6 mm and (ii) would not sufficient insulating properties or mechanical strength;" and the use of an aluminum nitride substrate having a high thermal conductivity and a thickness of 0.3-0.6 mm as claimed, allows for the claimed LED apparatus to have "improved heat radiation performance and can thereby have significantly increased critical currents (maximum passable current, or applicable maximum current quantity) and dramatically increased emission intensities" while maintaining a sufficient insulating property and mechanical strength (specification: page 13, lines 1-4). "

Hisaka discloses, for example, Col. 7, lines 25-26, the mirror-polished substrate having a thickness of 0.25 mm, which is about 0.3 mm.

Furthermore, there is no submission of objective evidence of record demonstrating a new and unexpected result achieved by the claimed invention. Therefore, the claimed invention is not patentable over the cited reference.

4. Applicant argues that "Hisaka silent about the particular emission of white light."

Hisaka was not cited to teach an artisan the entire structure of the claimed invention. Hisaka was merely cited to teach an artisan the aluminum nitride substrate is

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mirror-polished so as to have a surface roughness of 0.3  $\mu\text{m}$  Ra or less, and the thickness of the substrate.

The emission of white light was clearly taught by Hsing Chen ([0061]).

5. Applicant argues that "Lee does not disclose an AlN substrate as claimed by Applicants", "the device of Lee has bonding wires 254 and 255 which extend between a bonding pad located on the top major surface of the semiconductor die 250 and the bonding pad 132 (see Figures 2A, 2B, and 6B-6D)", and

Lee was not cited to teach an artisan the entire structure of the claimed invention. Lee was merely cited to teach an artisan the material used, for example, silver, for the metal film, of the Hsing Chen's device, in order to achieve the Hsing Chen's device having a reflectivity of 90% or more.

/Lynne A. Gurley/

Supervisory Patent Examiner, Art Unit 2811